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THE NOMENCLATORIAL STATUS OF SPIRANTHES SINENSIS

BY

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IN 1919, Professor E. D. Merrill, in the Philippine Journal of Science 15 (1919) 230, adopted the combination *Spiranthes aristotelia* (Raeusch.) Merrill in place of *Spiranthes sinensis* (Pers.) Ames. Furthermore, in 1935, in the Transactions of the American Philosophical Society n.s. 24, pt. 2 (1935) 122, he commented on the validity of this combination. Was he justified in adopting this new combination?

The earliest post-Linnean name applied to this species is *Ophrys spiralis* Georgi Bemerk. Reise Russ. Reich 1 (1775) 232, *non Linnaeus*. The specific epithet, however, is not available for two reasons, first because of the earlier *Ophrys spiralis* L. (1753) and second because of the already existing *Spiranthes spiralis* C. Koch (1849).

The second name given to the species is *Aristotelea spiralis* Loureiro Fl. cochinch. 2 (1790) 522; ed. Willd. 2 (1793) 638. The generic name is not available because of the earlier *Aristotelia* L'Hérit. (1784) and the specific epithet is not tenable on account of the combination *Spiranthes spiralis* C. Koch (1849).

The third name used was *Epidendrum Aristotelia* Raeuschel Nomencl. Bot., ed. 3 (1797) 265. The status of this combination upon which Professor Merrill based his combination *Spiranthes aristotelia* seems open to considerable question. As published by Raeuschel it reads:

EPIDENDRUM
Aristotelia. Canto Sinar.

In a footnote the following statement is made: ''Hanc [Aërides], et sex praecedentes species Celeb. Loureirus propriis generibus adscripsit: videntur vero omnia ad Linei Epidendra pertinere, hancque ob causam huic generi interim inserere, quam nova et incerta genera proponere malui.''

There appear to be two reasons why the combination of Raeuschel must be considered as not in good standing. First, because according to the International Rules (Art. 44 (2)) a species is not validly published unless accompanied ''by the citation of a previously and effectively published description of the group under another name;...'' That this article is complied with by Raeuschel is, in the writer's opinion, open to grave doubt. No direct citation of previous publication is given and the name-bringing synonym is lacking. The only possible clue to its previous description is by inference through the footnote quoted above, which states that Loureiro in some undesignated publication described it as a separate and distinct genus.

Some botanists contend that the fact that Raeuschel's footnote states that Loureiro treated these species as genera is sufficient citation of previous publication and that it is not necessary to state where or under what name the plant was treated. Furthermore, they affirm that naturally the mention of Loureiro must be taken as a reference to his most important work, ''Flora cochinchinensis.''

Why should a seeker after facts be obliged to infer; why should he be required to guess what an obscure note implies? Certainly this practice does not tend to place the proper stress upon clarity and accuracy and should be discouraged. Such halfway citation as is employed by Raeuschel seems to be far from the spirit of Article 44, and I believe that the partial reference contained in the footnote is too vague to remove Raeuschel's combination from the *nomen* category.

The second, and perhaps more weighty, reason against the use of the combination is the specific epithet *Aristotelia* used by Raeuschel. According to Art. 54 of the International Rules: "When a species is transferred to another genus (or placed under another generic name for the same genus), without change of rank, the specific epithet must be retained or (if it has not been retained) must be re-established, unless one of the following obstacles exists: (1) that the resulting binary name is a later homonym (Art. 61) or a tautonym (Art. 68, 3), (2) that there is available an earlier validly published specific epithet." Following this rule, which is clearly made retroactive, Raeuschel was obligated to use *spiralis* as the specific epithet as no previous *Epidendrum spirale* existed. The fact that a later combination *Spiranthes spiralis* C. Koch invalidates the use of *spiralis* under Spiranthes carried no weight at the time of Raeuschel's publication. His combination is not a tautonym and there was available no "earlier validly published specific epithet." The fact that Raeuschel's epithet is illegitimate is made very clear by Art. 60 of the International Rules which states: "A name must be rejected if it is illegitimate (see Art. 2). The publication of an epithet in an illegitimate combination must not be taken into consideration for purposes of priority (see Art. 45). A name is illegitimate in the following cases. (1) If it was superfluous when published, i.e. if there was a valid name (see Art. 16) for the group to which it was applied, with its peculiar circumscription, position and rank. (2) If it is a binary or ternary name published in contravention of Art. 16, 50, 52 or 54, i.e. if its author did not adopt the earliest legitimate epithet available for the group with its particular circumscription, position and rank.'' Raeuschel's procedure fails to comply with this Article since it creates a new specific epithet and ignores a valid epithet (*spiralis*). Hence his combination is illegitimate. Consequently Raeuschel's choice of *Aristotelia* as a specific epithet is contrary to Articles 54 and 60 and has no standing.

The fourth binary combination published was *Neottia spiralis* Willdenow Sp. Pl. 4 (1805) 74. The specific epithet is unavailable for two reasons: because the species proper is not the plant under consideration and because of the *Spiranthes spiralis* C. Koch.

The fifth name applied to the species was *Neottia sinensis* Persoon Syn. Pl. 2 (1807) 511. Persoon based his plant on *Aristotelia spiralis* Lour. and gave an adequate description. Professor Ames cited *Neottia sinensis* Pers. as the name-bringing synonym when he published his combination *Spiranthes sinensis* (Pers.) Ames Orch. 2 (1908) 53, and gave full synonymy. In this procedure he fully complied with the International Rules.

In summarizing, the oldest specific epithet *spiralis* is inadmissible because of the combination *Spiranthes spiralis* C. Koch and the next proposed specific epithet *Aristotelia* is considered of no standing for the reasons stated under the discussion of *Epidendrum Aristotelia* Raeuschel. Furthermore, in consequence of the extremely dubious status of *Aristotelia* as a specific epithet, it would be most unwise to displace a combination made strictly in accordance with the International Rules by one that is certainly at variance with the spirit of Article 44 and directly contrary to the fact as stated in Articles 54 and 60.

Consequently, in my judgment, the valid name of the species is **Spiranthes sinensis** (*Pers.*) *Ames.* For a nearly complete bibliography and synonymy of the species, confer Ames Orch. 2 (1908) 53 and Ames in Merrill Enum. Philip. Flow. Pls. 1 (1924) 268. Since the issue of this last publication, a few new synonyms, which have no bearing on the nomenclatorial status of the species, have been published.

NOMENCLATORIAL NOTES ON COSTA RICAN ORCHIDS

BY

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Lepanthes Wercklei *Schlechter* in Fedde Repert. 10 (1912) 396.

Lepanthes apiculifera Schlechter in Fedde Repert. Beihefte 19 (1923) 177.

The descriptions supplemented by drawings (with floral analyses) of the type specimens made from Schlechter's drawings show that these concepts are identical. The single morphological discrepancy which we can discover between them lies in the petal which is shown and described as simple in *L. Wercklei* and bilobed (with a minute apicule-like lobe) in *L. apiculifera.* Such an inconspicuous character might easily be overlooked under any but the highest magnification, and in reality all the specimens which appear as *L. Wercklei* in our herbarium show a minute more or less rounded lobule anterior to the relatively large cuneate-obovate posterior lobe. There is no sharp lobule as attributed to *L. apiculifera.*

Furthermore, the petals frequently appear to be cellular-pubescent, unlike those described in the case of both species. Other variations from the description are seen in the leaves which rarely reach a length of 5.4 cm. or a width of 6 mm. and the stems which extend to 12 cm. in length.

Maxillaria nasuta *Reichenbach filius* Beitr. Orch. Centr.-Am. (1866) 104.

Maxillaria brevipedunculata Ames & Schweinfurth in Sched. Orch. 10 (1930) 91.

The recent acquisition of drawings of *M. nasuta* from the Reichenbachian herbarium indicate that this species includes the concept *M. brevipedunculata.*

Maxillaria Reichenheimiana *Endres & Reichenbach filius* in Gard. Chron. 1871: 1678.

Maxillaria pachyacron Schlechter in Fedde Repert. 9 (1911) 165.

The recently acquired drawings showing the habit and floral analyses of *Maxillaria Reichenheimiana* from the Reichenbachian herbarium demonstrate clearly that this species includes the concept *Maxillaria pachyacron,* as represented by similar habit and floral drawings made under the supervision of Dr. Schlechter.

The only discrepancy in these concepts that we can discover is that the lip of *M. Reichenheimiana* bears some short filiform papillae surrounding the median callus. These papillae appear to be absent in *M. pachyacron* as well as in most of the numerous Costa Rican specimens which are referable to this species.

The size and proportions of the leaf seem to constitute a variable character. The extreme length of the leaf-blade in the many Costa Rican specimens examined appears to be about 13.6 cm., while the width of some of the elliptic-ligulate leaves is about 1.2 cm. Some blades are almost subsessile, while others have a petiole up to 3 cm. long. Furthermore, the mottling of the leaf, which is a characteristic of *M. Reichenheimiana,* appears to be absent from many dried specimens from Costa Rica which are undoubtedly referable to this species. Doubtless this maculate character is observable chiefly in living specimens, as the type of *M. Reichenheimiana* consisted of garden material and as this character has been noted by the collectors in some instances.

Maxillaria ringens *Reichenbach filius* in Walp. Ann. 6 (1863) 523.

Maxillaria Türckheimii Schlechter in Fedde Repert. 10 (1912) 295.

Maxillaria Rousseauae Schlechter in Beihefte Bot. Centralbl. 36, Abt. 2 (1918) 413.

Maxillaria pubilabia Schlechter in Fedde Repert. Beihefte 17 (1922) 71.

Maxillaria Amparoana Schlechter in Fedde Repert. Beihefte 19 (1923) 54.

Maxillaria ringens, which was described from a single inflorescence, is represented in our herbarium by a tracing of the sketch of this species from the Reichenbachian herbarium. While the type description cites the source as Oaxaca (*Karwinski*) and Guatemala (*Warscewicz*), the sketch is labeled "Costa Rica, No. 42." However, the drawing of the scape and floral analysis seem to coincide well with the description. The mid-lobe of the lip is shown as rhombic-ovate.

Maxillaria Türckheimii from Guatemala, of which we have a drawing of the type made under the supervision of Dr. Schlechter, appears to be identical with *M. ringens.* While the only possible comparison is confined to the inflorescence, the only discrepancies between these species seem to be the very slightly larger flowers of *M. Türckheimii* which is credited with an oblong rather than rhombic mid-lobe of the lip and an obtuse rather than acute callus. Of course, the latter character evidently varies with drying etc. *M. Türckheimii* is described as a caespitose plant with leaves 30–40 cm. long and 3.8–4.5 cm. wide.

Maxillaria Rousseauae from Panama, represented in our herbarium by a floral analysis of *Powell 115* (not the type) made under the supervision of Dr. Schlechter, varies from *M. Türckheimii* only in its somewhat smaller vegetative proportions (the leaf being 20–25 cm. long and 2.5–3 cm. wide) and in the mid-lobe of the lip which is described as rhombic-broadly-oval and figured as broadly obovate.

Maxillaria pubilabia from Panama, of which we have a drawing of the type made under the supervision of Dr. Schlechter, has the large vegetative proportions of *M. Türckheimii*, but the flowers are even smaller than in *M. ringens*, the sepals being cited as 2.5 cm. long. While the sepals are described as rather obtuse, they are shown in the drawing as acute or subacute and are very similar to those of the foregoing concepts. The callus of the lip is shown as obtuse and the mid-lobe subquadrate-oval.

The Costa Rican *M. Amparoana*, which is represented in our collection by drawings from the type made at Berlin, is vegetatively very similar to *M. Türckheimii*, but with narrower leaves (up to only 2.8 cm. wide) and the floral bract about twice surpasses the ovary (as is represented in the analysis of *M. ringens*). The sepals appear to be about as long as in *M. ringens*, but the callus of the lip is shown as obtuse, and the mid-lobe as obovate.

A series of collections in our herbarium extending from Guatemala to Panama shows considerable variation in vegetative characters, in the size of the flowers, in the length and shape of the mid-lobe of the lip and in the degree of pubescence on the disc of the lip.

Other species which are allied to this concept are *Maxillaria Brenesii* Schltr. and *M. Powellii* Schltr.

Maxillaria vaginalis *Reichenbach filius* Beitr. Orch. Centr.-Am. (1866) 77.

Camaridium Wercklei Schlechter in Fedde Repert. Beihefte 19 (1923) 58.

A sketch of the type of *Maxillaria vaginalis* from the Reichenbachian herbarium shows what was undoubtedly a young shoot entirely invested by distichous imbricating equitant sheaths. It shows at the summit the apical portion of a conduplicate leaf, but there is no indication of a pseudobulb. However, the presence of a leaf-blade indicates the existence of a rudimentary pseudobulb concealed within the sheaths. Just such shoots are frequent among the caulescent Maxillarias, and when isolated, do not, of course, show the pseudobulb which is almost invariably present between these shoots in complete specimens.

After making due allowance for this fact, the drawing of the floral parts supplemented by the description shows that the species is conspecific with the plant described as *Camaridium Wercklei* of which we have an analytical drawing made from the type. Not only the size and contour of the dried flowers, as shown by both drawings, but especially the form of the lip and its relative proportion to the column appear to be identical in these concepts.

A collection from Santa Clara de Cartago, Costa Rica (*C. H. Lankester 563*) shows a sheathed stem closely similar to that of the typical *Maxillaria vaginalis* lacking only the terminal leaf-blade. Other fragments of this collection show sheathed stems with scattered pseudobulbs as in *Camaridium Wercklei.* The leaf-blades appear to be of exactly the form of the latter concept, but the largest one reaches a size of 19 cm. in length and 4.7 cm. in width. Its floral parts seem to be a very close approximation to those of *Camaridium Wercklei,* but while the lip is about the same size as in the latter concept, the sepals are markedly larger and range from 3.8 to 4.6 cm. in length.

It appears, therefore, that these forms are so similar that they should be regarded as representing one species.

Ornithidium Schlechterianum *C. Schweinfurth nom. nov.*

Camaridium imbricatum Schlechter in Beihefte Bot.

Centralbl. 36, Abt. 2 (1918) 415.

Since this species exemplifies our conception of the genus Ornithidium in having the base of the lip immovably joined to the base of the column, the transfer from Camaridium becomes necessary. However, the prior use of the epithet *imbricatum* in Ornithidium makes it requisite to choose another name and *Schlechterianum* is selected.

Ornithidium Wrightii (*Schltr.*) *C. Schweinfurth comb. nov.*

Camaridium Wrightii Schlechter in Fedde Repert. 16 (1920) 448.

An analytical drawing of typical *Camaridium Wrightii*, made under the supervision of Dr. Schlechter, shows that the lip is rigidly attached to the column as in the genus Ornithidium.

A large collection from Costa Rica (*Lankester 571*) is surely referable to this species. Its flowers appear to be identical with those of *Camaridium Wrightii*, except that both the sepals and petals appear to have five to seven nerves. Vegetatively, however, it is a much smaller plant. The pseudobulbs, which are ancipitously suborbicular-ellipsoid, range from 1 to rarely 2 cm. in length and the oblong-elliptic leaves (in form like the type) reach a maximum length of 7.8 cm. and a width of 1.8 cm.

Pleurothallis dentipetala *Rolfe ex Ames* in Sched. Orch. 3 (January 1923) 7—Ames in Sched. Orch. 7 (1924) 27, t. 11.

Pleurothallis stelidiformis Schlechter in Fedde Repert. Beihefte 19 (November 1923) 195.

Pleurothallis Cooperi Schlechter in Fedde Repert. Beihefte 19 (November 1923) 286.

As shown by the description of *Pleurothallis stelidi-*

formis and a drawing (with floral analysis) from the type, this concept differs from *P. dentipetala* only in its rather larger vegetative proportions (taller stems, larger leaf etc.), smaller petals and somewhat smaller lip.

However, the type of *Pleurothallis dentipetala* consists of two incomplete, obviously immature specimens; and other collections, which are apparently inseparable from that species, show vegetative proportions that even exceed those of *P. stelidiformis.* One such collection (*Brenes* (*123*) *453*) has the stems up to 24 cm. long and the leaves up to 17.6 cm. long and as narrow as 2.8 cm. wide. Another collection (*Brenes 11450*) has leaves up to 13.4 cm. long and 6.5 cm. wide. Finally, *Lankester 1042*, while vegetatively very similar to the type of *P. dentipetala*, has a slightly narrower leaf, shorter and broader perianth-segments, and a blunt lip.

Morphologically the perianth-segments of these concepts seem to be precisely similar, and the petals of all are presumably 3-nerved despite the fact that those of *P. stelidiformis* and *P. dentipetala* are described as 2-nerved.

It appears, therefore, that *P. stelidiformis* must join the formerly reduced *P. Cooperi* in the synonymy of *P. dentipetala.*

Pleurothallis segoviensis *Reichenbach filius* in Bonpl. 3 (1855) 223.

Pleurothallis Wercklei Schlechter in Fedde Repert. 9 (1911) 213.

Pleurothallis bifalcis Schlechter in Beihefte Bot. Centralbl. 36, Abt. 2 (1918) 395.

Pleurothallis Wagneri Schlechter in Fedde Repert. 17 (June 1921) 141.

Pleurothallis falcatiloba Ames in Proc. Biol. Soc. Wash. 34 (December 1921) 152.

An analytical drawing of *Pleurothallis Wercklei*, made under the supervision of Dr. Schlechter (as well as numerous collections referred to that species) shows it to be inseparable from *P. segoviensis* Reichb.f. as recorded by a drawing of the type in Reichenbach's herbarium. Slight discrepancies from typical *P. segoviensis* appear in the somewhat less falcate petals, in the smooth claw of the lip (that of *P. segoviensis* being described, but not indicated, as "margine papilloso") and in the often prominently pilose inner surface of the sepals. Occasional specimens referred to *P. Wercklei*, however, have apparently smooth sepals, and this character appears to be of varying degree.

Pleurothallis bifalcis Schltr., also represented in our herbarium by an analytical drawing from Dr. Schlechter, appears to be only an enlarged form of *P. segoviensis*. It does not present any morphological difference from *P. segoviensis* other than in having a pubescent inner surface of the sepals. The raceme appears to be fewer-flowered (two to six) and its sepals are said to be 1.4 cm. long, whereas the largest sepals seen in the *P. Wercklei* form are scarcely over 9 mm. in length.

Pleurothallis Wagneri, of which we have a similar floral analysis made under the supervision of Dr. Schlechter, appears to be a vegetatively smaller plant than the preceding forms and to possess sepals (about 1.2 cm. long) longer than those of *P. Wercklei*, but somewhat smaller than those of *P. bifalcis*. The most striking departure from the other forms of this polymorphic species appears to lie in the abbreviated petals. However, similar petals appear in examples referred to *P. Wercklei*.

Pleurothallis falcatiloba is a concept that appears to represent the *P. Wagneri* form of this alliance.

The species appears to be very variable in the size of the plant, in the length of the leaves, in the size and color of the flowers, in the proportion of the petals to the lip and in the degree of hairiness of the inner surface of the sepals. According to collectors' notes the flowers are transparent white with purple stripes on the sepals (*P. Wagneri* form), green with brown-purple stripes, yellow-green with purple stripes, brownish, red, dark red-purple or blackish purple. Rarely there appears in the petals a slight but abrupt narrowing above on each side or even a little tooth on one side above. Commonly the inner surface of the sepals appears to be distinctly pilose, but the hairs may be indistinct, short or lacking.

This species extends from Guatemala and Nicaragua to Costa Rica and Panama.

Other plants which form a group of puzzling allied species are *P. Aguilarii* Ames, *P. amethystina* Ames, *P. canae* Ames, *P. Johannis* Schltr., *P. pompalis* Ames and *P. vinacea* Ames. This group (together with *P. segoviensis* Reichb. f.) may, with more extensive collections, be found to represent various extremes of one polymorphic species. For the present, however, these species appear to be clearly differentiated from P. *segoviensis* by morphological characters of the lip.

Pleurothallis vaginata *Schlechter* in Fedde Repert. Beihefte 19 (1923) 197.

Pleurothallis umbraticola Schlechter in Fedde Repert. 27 (1929) 56.

A close comparison of a record of the type of the Costa Rican *Pleurothallis vaginata* with several specimens referable to that species from Costa Rica and with the type collection of the Bolivian *P. umbraticola* convinces us that these species are conspecific. The Costa Rican representatives differ from *P. umbraticola* chiefly in having more or less distinctly 3-nerved (rather than 1-nerved) petals. The degree of acuteness of the sepals in these specimens appears to be a variable character. All the Costa Rican flowers referable to this species which we have seen differ from Schlechter's drawing of the type and from the description in having the lateral sepals semi-connate below (as in the type of *P. umbraticola*, the description notwithstanding) and in having a more or less distinctly pilose inner surface of the sepals as in *P. umbraticola*. Moreover, in all these Costa Rican specimens, as well as in *P. umbraticola*, the lip has a keel near each margin of the dilated anterior portion, a character which is not mentioned in the description of either species.

A collection from Mt. Roraima, British Guiana, is undoubtedly referable to this species, and has the 1-nerved petals of *P. umbraticola*.

Recently we have received two collections from Guadeloupe which, although the flowers were in a rather advanced stage, surely represent *P. vaginata*. They show almost entirely connate lateral sepals and traces of two lateral nerves in the petals besides the strong mid-nerve. One plant has a stem up to 29 cm. tall.

Specimens from Peru show distinctly 3-nerved petals.

A flowerless specimen (*Buchtien 5036*) from the same locality and altitude and of the same date as the type of *P. umbraticola* is almost certainly referable to this species. It has one leaf about 15 cm. long (exclusive of the petiole) and 7.8 cm. wide.

The specimens which we refer to this species have the following data:

COSTA RICA, La Palma. Epiphyte, 2 to 3 dm. tall. At 1260 meters altitude. October 24, 1922. *A.M. Brenes (2) 332*; Epiphyte, 1.5–2.5 dm. tall. At 1125 meters altitude. May 22, 1923. *A.M. Brenes 586*: Pejivalle. "Flowers deep maroon. Sepals hairy on interior surface. Lower sepals connate, bifurcate at tip." *C.H. Lankester 1162.*

GUADELOUPE, Forêt des Bains Jaunes. Forêt dense subéquitoriale. At 850 meters altitude. March 30, 1935. *H. Stehlé 22*; At 700 meters altitude. October 26, 193[?]. *H. Stehlé 413.*

British Guiana and Northern Brazil, Mt. Roraima. Humid temperate forest of the upper slopes, Rondon Camp. At 6900 feet altitude. December 3, 1927. *G.H.H. Tate 489.*

Peru, Department of Loreto, Pumayacu, between Balsapuerto and Moyobamba. Epiphyte in forest, flowers yellow-green and dark violet. At 600–1200 meters altitude. August-September 1933. *G. Klug 0.7.*

Bolivia, Hacienda Simaco sobre el camino a Tipuani. Región subtropical. "Auf Waldboden". At 1400 meters altitude. February 1920. *Dr. Otto Buchtien 5037* (Type of *P. umbraticola*).

Restrepia pilosissima (*Schltr.*) *Ames & Schweinfurth comb. nov.*

Pleurothallis pilosissima Schlechter in Fedde Repert. Beihefte 19 (1923) 289.

A record of the type of *Pleurothallis pilosissima* including floral analysis has recently been supplemented by a collection of this remarkable species from Costa Rica (*A. M. Brenes* (*116*) *1320*).

Evidently this species does not belong to the genus Pleurothallis, for its flowers show the clavate termination of the dorsal sepal and of the petals which is a characteristic feature of the genus Restrepia. Moreover, the lip, while somewhat more complicated than in the recorded members of Restrepia, still has the general aspect which obtains in the genus.

To be sure, the analysis of the species by Dr. Schlechter shows but two pollinia, whereas Restrepia has four pollinia. Also the Brenes collection cited above shows but two pollinia in its single available flower. However, the relatively broad, 2-chambered anther indicates that two additional pollinia were originally present.

This species is most unusual for Restrepia because of its excessively villous character throughout.

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